

Acknowledgement by the PTO of the receipt of applicants' papers filed under Section 119 is noted.

The title has been criticized. Per the examiner's helpful suggestion, it has been amended above.

Claims 1-10 have been rejected under the second paragraph of Section 112. The rejection is respectfully traversed and applicants request it be withdrawn.

At worst, the term "excellent" need not be given any weight, but it certainly does not render the claims indefinite. The MPEP indicates that antecedent basis need only be reasonable, not perfect. It is clear that recitation of "said polar radical" finds support in "polar group" in claim 4. As regards claims 6-8, the same is true with respect to "carboxyl radical" and "carboxyl group". Nevertheless, if the examiner insists, applicants are amenable to amending the claims to remove the word "excellent" and to make the antecedent basis even more definite.

Claims 12 and 17-20 have been rejected under the second paragraph of Section 112. This rejection is respectfully traversed.

Claims 17-20 have been deleted, and so the rejection no longer applies as regards these claims.

As regards claim 12, the process step is "amplifying". Claim 12 is dependent on a preceding claim, and the steps of the preceding claim are incorporated into claim 12 by law as per the last sentence of the fourth paragraph of 35 U.S.C. 112.

Applicants respectfully request withdrawal of the rejections based on Section 112.

Claim 11 has been rejected as anticipated by Lamture. This rejection is respectfully traversed.

Lamtire teaches a chip for immobilizing DNA in the nucleic acids research, wherein said DNA is immobilized on the surface of SiO<sub>2</sub> (page 2122, Fig. 1) and probe immobilization on the CCD surface.

On the other hand, SiO<sub>2</sub> or CCD is not used for immobilizing DNA in the present invention.

Applicants request withdrawal of this rejection.

Claim 1 has been rejected as anticipated by Yoshikazu. This rejection is respectfully traversed.

Yoshikazu uses a solid-state substrate for DNA immobilization with excellent thermal conductive characteristic for amplifying immobilized DNA. Such a solid-state substrate is a polymer of polyethylene, polypropylene,

etc. On the other hand, such a polymer for amplifying immobilized DNA is not used in the present invention.

Applicants request withdrawal of the rejection.

Claims 1, 3-5, 12, 17 and 19-21 have been rejected as anticipated by Adams. This rejection is respectfully traversed.

Adams uses a support plastics, glass or metal for DNA immobilization with thermal conductive characteristic for amplifying immobilized DNA. Said support is a plastic, glass or metal.

On the other hand, said support for amplifying immobilized DNA is not used in the present invention.

Claim 2 has been rejected as obvious under Section 103 from Yoshikazu in view of Klersy. Similarly, claims 3-7 and 13-16 have been rejected as obvious from the same combination further in view of Koster and Nikiforov and Lamture. These rejections are respectfully traversed.

Yoshikazu uses a polymer for DNA immobilization with excellent thermal conductive characteristic for amplifying immobilized DNA and does not use diamond.

Klersy teaches that insulated materials like diamond are characterized by relatively good thermal conductive

properties so that heat is relatively efficiently transferred such that the substrate is capable of serving as a heat sink.

But Klersy and Yoshikazu do not teach that diamond can be used as a substrate of DNA immobilization. They do not teach that diamond can be chemically modified. It would not have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the polymer of Yoshikazu to incorporate diamond as taught by Klersy for its high thermal conductive properties as well known in the art.

Nikiforov uses polystyrene plates for DNA hybridization-based assays. Lamture uses a surface  $\text{SiO}_2$  for immobilizing DNA.

On the other hand, the use of diamond for immobilizing DNA and the description concerning the use of diamond for immobilizing DNA are not found in those cited references.

The description concerning chemically modification of diamond to comprise a polar group of terminal end is not found these cited references.

Applicants respectfully submit first that it would not have been obvious to the person of ordinary skill in the art at the time the present invention was made to attempt to combine the citations in the ways proposed in the rejections. Moreover, applicants respectfully submit that even if it were

obvious to so combine the references, the results would not correspond to applicants' invention.

Withdrawal of these rejections is in order and is respectfully requested.

Claims 8-10 have been rejected as obvious under Section 103 from Yoshikazu in view of Koster and further in view of Uchida. This rejection is respectfully traversed.

Again, applicants respectfully submit that the combination as proposed would not have been obvious; and moreover, such a combination, even if obvious, would not reach applicants' invention. In this regard, Uchida teaches a magnetic substrate wherein the surface of the substrate is coated with a titanium coupling agent. But diamond is not a magnetic substrate.

Withdrawal of the rejection is in order and is respectfully requested.

Claim 18 has been rejected as obvious under Section 103 from Adams in view of Klersy. This rejection is moot in view of the deletion of claim 18.

For the record, Adams and Klersy do not teach that diamond can be chemically modified as described above. It was not obvious to one of ordinary skill in the art at the time the invention was made to have modified the polymer of


Yoshikazu to incorporate diamond as taught by Klersy for its high thermal conductive properties as well known in the art.

The prior art documents made of record and not relied upon have been noted, along with the implication that these documents are deemed by the PTO to be insufficiently pertinent to warrant their application against any of applicants' claims. Zhang and Nikiforov do not teach that diamond can be chemically modified with a carboxyl group

Applicants respectfully request favorable reconsideration and allowance.

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